



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:  
Staley A. Brod

Serial No.: 08/844,731

Filed: April 21, 1997

For: METHODS OF TREATING  
AUTOIMMUNE DISEASES USING TYPE  
ONE INTERFERONS

Group Art Unit: 1761

Examiner: Jegatheesan Seharaseyon

Atty. Dkt. No.: CLFR:114US / D5716

03/15/2005 HTECKLU1 00000077 08844731

01 FC:1806

180.00 OP

**CERTIFICATE OF MAILING  
37 C.F.R. 1.8**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: MS AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date below:

March 11, 2005

Date

David L. Parker

**INFORMATION DISCLOSURE STATEMENT**

**MS AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

In accordance with 37 C.F.R. §§ 1.97(g), (h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be



an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

This application is a continuation-in-part application of Serial No. 08/631,470, filed April 15, 1996 which is a continuation-in-part application of Serial No. 08/408,271, filed March 24, 1995 which is a continuation-in-part of 08/226,631 filed April 12, 1994 and is relied upon for an earlier filing date under 35 U.S.C. § 120. In accordance with Rule 37 C.F.R. § 1.98(d) only copies of those documents not previously cited and submitted to the Patent and Trademark Office in prior application Serial Nos. 08/631,470, 08/408,271, or 08/226,631 are enclosed for the convenience of the Examiner.

A fee as set forth in 37 C.F.R. § 1.17(p) in the amount of \$180.00 is enclosed herewith. If an appropriate check has not been enclosed, or if it is insufficient, the Commissioner is authorized to deduct the appropriate fee from Fulbright & Jaworski Account No.: 50-1212/CLFR:114US.

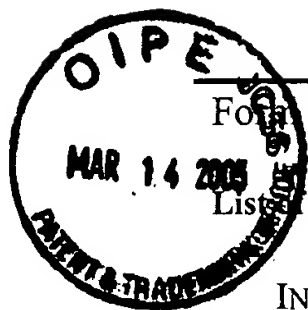
Applicant respectfully requests that the listed documents be made of record in the present case.

Respectfully submitted,

David L. Parker  
Reg. No. 32,165  
Attorney for Applicant

FULBRIGHT & JAWORSKI L.L.P.  
600 Congress Avenue, Suite 2400  
Austin, Texas 78701  
(512) 474-5201

Date: March 11, 2005



Form PTO-1449 (modified)

List of Patents and Publications for Applicant's

## INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Atty. Docket No.

CLFR:114US

Serial No.

08/844,731

Applicant

Staley A. Brod

Filing Date:

April 21, 1997

Group:

1761

U.S. Patent Documents

See Page 1

Foreign Patent Documents

See Page 1

Other Art

See Page 1

## U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	4,409,243	10/11/83	Lieb	424	330	11/9/81
	A2	4,462,985	7/31/84	Cummins	424	85	9/7/82
	A3	5,093,338	3/3/92	Byrne	514	291	4/23/91
	A4	5,624,895	4/29/97	Sobel	514	8	2/18/94

## Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No
	B1	WO 83/03411	10/13/83	WIPO			English
	B2	WO 96/28183	9/19/96	WIPO			English

## Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C1	"Interferon beta-1b is effective in relapsing-remitting multiple sclerosis. I. Clinical results of a multicenter, randomized, double-blind, placebo-controlled trial. The IFNB Multiple Sclerosis Study Group," <i>Neurology</i> 43:655-661. 1993.
	C2	Bayley <i>et al.</i> , "The transmucosal absorption of recombinant human interferon-alpha B/D hybrid in the rat and rabbit," <i>J. Pharm. Pharmacol.</i> 47(9):721-724. 1995.
	C3	Bocci <i>et al.</i> , "Is interferon effective after oral administration? The state of the art." <i>J. Biol. Regul. Homeos. Agents</i> , 4(2):81-83, 1990.
	C4	Bocci, "Absorption of cytokines via oropharyngeal-associated lymphoid tissues," <i>Clin Pharmacokinet</i> , 21(6):411-417, 1991.
	C5	Bocci, "Immunomodulators as local hormones: new insights regarding their clinical utilization," <i>Journal of Biological Response Modifiers</i> , 4:340-352, 1985.
	C6	Bosio <i>et al.</i> , "Efficacy of low-dose oral use of type I interferon in cytomegalovirus infections in vivo," <i>J. Interferon Cytokine Res.</i> , 19:869-876, 1999.

25503799.1

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)		Atty. Docket No. CLFR:114US	Serial No. 08/844,731
List of Patents and Publications for Applicant's  INFORMATION DISCLOSURE STATEMENT  (Use several sheets if necessary)		Applicant Staley A. Brod	
		Filing Date: April 21, 1997	Group: 1761
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1</i>	

**Other Art (Including Author, Title, Date Pertinent Pages, Etc.)**

Exam. Init.	Ref. Des.	Citation
	C7	Brod and Khan "Oral administration of IFN- $\alpha$ is superior to subcutaneous administration of IFN- $\alpha$ in the suppression of chronic relapsing experimental autoimmune encephalomyelitis," <i>J. Autoimmunity</i> , 9:11-20, 1996.
	C8	Brod <i>et al.</i> , "Ingested (oral) IFN-alpha induces MxA mRNA in RRMS" (Submitted for publication)
	C9	Brod <i>et al.</i> , "Ingested IFN- $\alpha$ has biological effects in humans with relapsing-remitting multiple sclerosis," <i>Mult. Scler.</i> , 3:1-7, 1997.
	C10	Brod <i>et al.</i> , "Ingested interferon $\alpha$ suppresses type I diabetes in non-obese diabetic mice," <i>Diabetologia</i> , 41:1227-1232, 1998.
	C11	Brod <i>et al.</i> , "Ingested interferon alpha induces Mx mRNA," <i>Cytokine</i> , 11:1-8, 1999.
	C12	Brod <i>et al.</i> , "Ingested interferon alpha preserves residual beta cell function type 1 diabetes," <i>J. Interferon Cytokine Res.</i> , 2(12):1021-1030, 2001.
	C13	Brod, "Hypothesis: multiple sclerosis is a type I interferon deficiency syndrome," <i>Proc. Soc. Exp. Biol. Med.</i> 218:278-283, 1998.
	C14	Butcher, "The regulation of lymphocyte traffic," <i>Current Topics in Microbiology and Immunology</i> , 128:85-122, 1986.
	C15	Cantell and Pyhala, "Circulating interferon in rabbits after administration of human interferon by different routes," <i>Virol.</i> , 20:97-104, 1973.
	C16	Carter <i>et al.</i> , "Disease modifying therapies in multiple sclerosis," <i>CNS Drugs</i> , 3:99-114, 1995.
	C17	Connelly, "Interferon beta for multiple sclerosis," <i>Ann. Pharmacother.</i> , 28(5):610-616, 1994.
	C18	Dhingra <i>et al.</i> , "A phase-I clinical study of low-dose oral interferon-alpha," <i>J. Immunother.</i> , 14(1):51-55, 1993.
	C19	Fleischmann <i>et al.</i> , "Orally administered interferons exert their white blood cell suppressive effects via a novel mechanism, <i>Neurology</i> , 13, 1993.
	C20	Gibson <i>et al.</i> , "Pharmacokinetics of recombinant leukocyte A interferon following various routes and modes of administration to the dog," <i>Journal of Interferon Research</i> , 5:403-408, 1985.

25503799.1

**EXAMINER:****DATE CONSIDERED:**

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)

List of Patents and Publications for Applicant's

## INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Atty. Docket No.

CLFR:114US

Serial No.

08/844,731

Applicant

Staley A. Brod

Filing Date:

April 21, 1997

Group:

1761

U.S. Patent Documents

See Page 1

Foreign Patent Documents

See Page 1

Other Art

See Page 1

## Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C21	Goldstein <i>et al.</i> , "Human biologic response modification by interferon in the absence of measurable serum concentrations: a comparative trial of subcutaneous and intravenous interferon- $\beta$ serine," <i>Journal of the National Cancer Institute</i> , 81(14):1061-1068, 1989.
	C22	Goodkin <i>et al.</i> , "Experimental therapies for multiple sclerosis: current status," <i>Cleve. Clin. J. Med.</i> , 59:63-74, 1992.
	C23	Higgins <i>et al.</i> , "Suppression of experimental autoimmune encephalomyelitis by oral administration of myelin basic protein and its fragments," <i>J. Immunol.</i> 140:440-445, 1988.
	C24	Horisberger, "MX protein: function and mechanism of action, Biotechnology, Ciba-Geigy Ltd., CH-4002 Basel, Switzerland.
	C25	Hutchison <i>et al.</i> , "Chronic recurrent aphthous stomatitis: oral treatment with low-dose interferon alpha," <i>Mol. Biother.</i> , 2:160-164, 1990.
	C26	Koech <i>et al.</i> , "Efficacy of Kemron (low dose oral natural human interferon alpha) in the management of HIV-1 infection and acquired immune deficiency syndrome (AIDS)," <i>East Afr. Med. J.</i> , 67(7 Supp 2):SS64-70, 1990.
	C27	Koech <i>et al.</i> , "Low dose oral alpha-interferon therapy for patients seropositive for human immunodeficiency virus type-1 (HIV-1)," <i>Mol. Biother.</i> , 2(2):91-95, 1990.
	C28	Konrad <i>et al.</i> , <i>Biological Barriers to Protein Delivery</i> , ch. 14, 409-437, ed. Audus et al. 1993.
	C29	Larocca <i>et al.</i> , "Evaluation of neutralizing antibodies in patients treated with recombinant interferon- $\beta$ ser," <i>Journal of Interferon Research</i> , 9(Supp 1):S51-S60, 1989.
	C30	Lecce <i>et al.</i> , "Treatment of rotavirus infection in neonate and weanling pigs using natural human interferon alpha," <i>Mol. Biother.</i> 2(4):211-216, 1990.
	C31	Liu <i>et al.</i> , "Accumulation of protein O-GlcNAc modification inhibits proteasomes in the brain and coincides with neuronal apoptosis in brain areas with high O-GlcNAc metabolism," <i>J. Neurochem.</i> , 89(4):1044-1055.
	C32	Mashkovskii <i>et al.</i> , "Drugs," Moscow, Meditsina, 2:389-392, 1993.
	C33	Mowat <i>et al.</i> , "The regulation of immune responses to dietary protein antigens," <i>Immun. Today</i> , 8:93-98, 1987.

25503799.1

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Foreign PTO-1449 (modified)		Atty. Docket No. CLFR:114US	Serial No. 08/844,731
List of Patents and Publications for Applicant's  INFORMATION DISCLOSURE STATEMENT  (Use several sheets if necessary)		Applicant Staley A. Brod	
		Filing Date: April 21, 1997	Group: 1761
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1</i>	

**Other Art (Including Author, Title, Date Pertinent Pages, Etc.)**

Exam. Init.	Ref. Des.	Citation
	C34	Nagler <i>et al.</i> , "Immunotherapy with recombinant human interleukin-2 and recombinant interferon-alpha in lymphoma patients postautologous marrow or stem cell transplant," <i>Blood</i> , 89:3951-5959.
	C35	Owens <i>et al.</i> , "The immunology of multiple sclerosis and its animal model, experimental allergic encephalomyelitis," <i>Neurol. Clin.</i> , 13(1):51-73, 1995.
	C36	Paulesu <i>et al.</i> , "Oral administration of human recombinant interferon-a2 in rats," Elsevier Science Publishers B.V. (Biomedical Division), 46:199-202, 1988.
	C37	Radwanski <i>et al.</i> , "Pharmacokinetics of interferon $\alpha$ -2b in healthy volunteers," <i>J Clin Pharmacol</i> , 27:432-435, 1987.
	C38	Satoh <i>et al.</i> , "Suppression of late asthmatic response by low-dose oral administration of interferon-beta in the guinea pig model of asthma," <i>J. Interferon Cytokine Res.</i> , 19:887-894, 1999.
	C39	Schafer <i>et al.</i> , "Interferon administered orally: protection of neonatal mice from lethal virus challenge," <i>Science</i> , 176:1326-1327, 1972.
	C40	Shim <i>et al.</i> , "Administration route dependent bioavailability of interferon- $\alpha$ and effect of bile salts on the nasal absorption," <i>Drug Dev. Indus. Pharm.</i> , 19:1183-1199, 1993.
	C41	Thompson <i>et al.</i> , "Gastric administration of type II collagen delays the onset and severity of collagen-induced arthritis in rats," <i>Clin. Exp. Immunol.</i> , 64(3):581-586, 1985.
	C42	Vial <i>et al.</i> , "Clinical toxicity of the interferons," <i>Drug Saf.</i> , 10(2):115-150, 1994.
	C43	Wedner <i>et al.</i> , <i>Basic Clinical Immunology</i> , 7 <sup>th</sup> edition Chap 34, 1991
	C44	Wills <i>et al.</i> , "Pharmacokinetics of recombinant alpha A interferon following IV infusion and bolus, IM, and PO administration to African green monkeys," <i>Journal of Interferon Research</i> , 4(3):399-409, 1984.
	C45	Witt <i>et al.</i> , "Absence of biological effects of orally administered interferon- $\beta$ ser," <i>Journal of Interferon Research</i> , 12:411-413, 1992.
	C46	Yershov <i>et al.</i> , "Interferon status in different diseases," <i>Voprosy Virusologii</i> , 35:444-448, 1990 (Russian)

25503799.1

**EXAMINER:****DATE CONSIDERED:**

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)

Atty. Docket No.  
CLFR:114USSerial No.  
08/844,731

List of Patents and Publications for Applicant's

Applicant  
Staley A. Brod

## INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Filing Date:  
April 21, 1997Group:  
1761U.S. Patent Documents  
*See Page 1*Foreign Patent Documents  
*See Page 1*Other Art  
*See Page 1*

## Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C47	"Mean body weight, height, and body mass index, United States 1960-2002," Advance Data From Vital and Health Statistics, CDC, US Department of Health and Human Services: Centers for Disease Control and Prevention, Number 347, October 27, 2004.

25503799.1

EXAMINER:

DATE CONSIDERED:

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.